CLAIMS

Therefore, having thus described the invention, at least the following is claimed:

1. A smoke detector comprising:

a smoke sensor sensing a smoke condition and outputting an alarm signal upon detecting a smoke condition;

an alarm, connected to the smoke sensor, indicating a smoke condition upon detection of the alarm signal; and

a communication device, connected to the smoke sensor, receiving the alarm signal and wirelessly transmitting an indicator of the smoke condition in a predetermined message format to a remote monitoring device upon detection of the alarm signal, each communication device having an unique address.

2. The smoke detector of claim 1, wherein the smoke sensor is a photodetection smoke sensor.

3. The smoke detector of claim 2, wherein the alarm is an audible alarm.

4. The smoke detector of claim 3, wherein the predetermined message format comprises at least one packet, wherein the packet comprises:

a receiver address comprising a scalable address of the at least one of the intended receiving communication device;

a sender address comprising the address of the sending

communication device;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and

an error detector that is a redundancy check error detector.

5. The smoke detector of claim 4, wherein the packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generate a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

6. The smoke detector of claim 5, wherein the packet further comprises:

a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

7. The smoke detector of claim 6, wherein the wireless communication comprises radio frequency (RF) communication.

8. The smoke detector of claim 7, wherein the wireless communication comprises a low powered RF communication.

9. The smoke detector of claim 8, wherein the message comprises Manchester encoding.

10. An apparatus for insertion between a smoke detector and a surface, the apparatus comprising:

a data interface configured to receive a signal and outputs a conditioned signal;

an identifier configured to output an unique identifier of the apparatus;

a data controller configured to receive the conditioned signal and the unique identifier and to output a message comprising the conditioned signal and the unique identifier in a predetermined message format; and

a transmitter configured to wirelessly transmit the message.

11. The apparatus of claim 10, wherein the message comprises at least one packet, wherein the packet comprises:

a receiver address that is a scalable address of the at least one of the intended receiving transceivers;

a sender address that address is the unique identifier of the sending transceiver;

a command indicator that is a command code;

data that is a scalable message; and

an error detector that is a redundancy check error detector.

12. The apparatus of claim 11, wherein the packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generate a response message number equal to the sender message number +1.

13. The apparatus of claim 12, wherein the packet further comprises:

a preface and a postscript;

wherein the preface comprises twenty four logic ones and a two bits of high voltage; and

wherein the postscript comprises a low voltage output.

14. The apparatus of claim 13, wherein the communicator is in wireless communication with the local gateway.

15. The apparatus of claim 14, wherein the wireless communication is via radio frequency (RF) communication.

16. The apparatus of claim 15, wherein the wireless communication is via a low powered RF communication.

17. The apparatus of claim 16, wherein the preformatted message is transmitted via Manchester encoding.

18. A remote monitoring system comprising:

a sensor sensing a condition and outputting a signal;

a communicator configured to receive the signal and transmitting a corresponding message via a predetermined message format;

a remote gateway, geographically remote from the communication device, configured to receive the message and decode the message via a predetermined message format; and

a central monitoring station, communicating with the remote gateway via a WAN, configured to receive the decoded message.

19. The system of Claim 18, wherein the sensor comprises a smoke detector and the sensed signal indicates a presence of smoke.

20. The system of claim 19, wherein the communication device comprises an transmitter, a data interface, a data controller, and an identifier;

wherein the data interface receives the signal and outputs a conditioned signal;

wherein the identifier outputs an unique identifier of the communication device;

wherein the data controller receives the conditioned signal and the unique identifier and outputs the message; and

wherein the transmitter wirelessly transmits the message.

21. The system claim 20, wherein the message comprises at least one packet,

wherein the packet comprises:

a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;

a sender address comprising the unique identifier of the sending transceiver;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and

an error detector comprising a redundancy check error detector.

22. The system of claim 21, wherein the packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generate a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

23. The system of claim 22, wherein the packet further comprises:

a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

24. The system of claim 23, wherein the communicator is in wireless communication with the local gateway.

25. The system of claim 24, wherein the wireless communication comprises radio frequency (RF) communication.

26. The system of claim 25, wherein the wireless communication comprises a low powered RF communication.

27. The system of claim 26, wherein the preformatted message further comprises Manchester encoding.

28. The system of claim 18, wherein the sensor and the communicator form a sensing system, and wherein the system further comprises a plurality of sensing systems, each communicating with the local gateway.

29. The system of claim 23, wherein each transceiver is in wireless communication with at least one other of the plurality of transceivers.

30. The system of claim 24, wherein the wireless communication is via radio frequency (RF) communication.

31. A sensing system for remotely sensing a condition and remotely transmitting the sensed condition to a geographically remote controller, the sensing system comprising:

a sensor that detects a condition and outputs a sensed signal;

a communicator that receives the sensed signal, composes a message comprising the sensed signal to the geographically remote controller;

wherein the communicator comprises:

a data interface that receives the sensed signal, conditions the sensed signal, and outputs the conditioned signal

an unique identifier that uniquely identifies the communicator;

a data controller that receives the data interface and the unique identifier, composes the message, and outputs the message; and

a transmitter that receives the message and transmits the message to the geographically remote facility; and

wherein the message comprises at least one packet, wherein the packet contains:

a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;

a sender address comprising the unique identifier of the sending sensor message;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and

an error detector comprising a redundancy check error detector.

32. The system of claim 31, wherein a packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender messages in the preformatted command message and the transceiver generates a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

33. The system of claim 32, wherein the packet further comprises a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

34. The system of claim 33, wherein the communicator is a transmitter that transmits the message.

35. The system of claim 34, wherein the communicator is a transceiver that transmits the message and receives messages.

36. The system of claim 35, wherein the sensing system is in wireless communication with the geographically remote controller.

37. The system of claim 36, wherein the wireless communication comprises radio frequency (RF) communication.

38. The system of claim 37, wherein the RF communication comprises a low powered RF communication.

39. They system of claim 38, wherein the preformatted message comprises Manchester encoding.

40. A remote monitoring system comprising:

means for sensing a condition and transmitting a message;

means for remotely receiving the message and decoding the message; and

means for remotely monitoring the remote receiving means whereby the remote monitoring means receives the decoded message and reviews the decoded message.

41. The system of claim 40, wherein the sensing means comprises means for sensing smoke.

42. The system of claim 41, wherein the sensing means comprises:

means for wirelessly transmitting the message;

means for conditioning the sensed signal;

means for uniquely identifying the sensing means; and

means for formatting the conditional signal into the message.

43. The system of claim 42, wherein the predetermined message format comprises:

means for identifying at least one intended received of the message;

means for identifying the sending receiving means;

means for identifying a command;

means for identifying the sensed signal;

means for identifying any errors.

44. The system of claim 43, wherein the predetermined message format further comprises at least one means for packeting information; and

wherein the message comprises at least one packeting means.

45. The system of claim 44, wherein the predetermined message format further comprises:

means for identifying a number of byte length of the current packet;

means for identifying a number of packets in a message;

means for identifying which of the total number of packets in a message the current packet is; and

means for identifying which of the total number of packets in a message the current packet it; and

means for identifying the message to coordinate the command and the response.

46. The system of claim 45, wherein the means for packeting further comprises:

means for prefacing the packet; and

means for postscripting the packet.

47. The system of claim 46, wherein the prefacing means comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

48. wherein the postscripting means comprises a low voltage output.

48. The system of claim 47, wherein the wireless transmitting means transmits via radio frequency.

49. The system of claim 48, wherein the wireless transmitting means transmits via low-powered radio frequency.

50. The system of claim 49, wherein the wireless transmitting means transmits via Manchester coding.

51. The system of claim 50, wherein the system further comprises means for systematic sensing comprising a sensing means and a receiving means; and

wherein the system further comprises multiple systematic sensing means.

52. A system for sensing a condition and remotely transmitting the sensed condition to geographically remote controller, the system comprising:

means for sensing a condition and transmitting a message to a geographically remote controller via a predetermined message format;

wherein the sensing means comprises:

means for conditioning the sensed signal;

means for uniquely identifying the communicating means;

means for formatting the conditional signal into the predetermined formatted message; and

means for transmitting the message; and

wherein the predetermined message format comprises at least one packet, wherein the packet comprises:

means for identifying at least one intended receiver;

means for identifying a sender;

means for identifying a command;

means for identifying the sensed signal; and

means for identifying errors.

53. The system of claim 52, wherein the packet further comprises:

means for indicating a byte length of the packet;

means for indicating a total number of packets in a message;

means for indicating which of the total number of packets the current packet is; and

means for identifying the message to coordinate commands and responses.

54. The system of claim 53, wherein the packet further comprises:

means for prefacing the packet comprising twenty-four logic ones and two bits of high voltage; and

means for postscripting the packet comprising a low voltage output.

55. The system of claim 54, wherein the sensing means comprises an RF transmitter.

56. The system of claim 55, wherein the sensing means comprises an RF transceiver.

57. A method of remotely monitoring a condition, the method comprising:

monitoring a condition;

outputting a sense signal;

transmitting the sensed signal to a geographically remote controller via a predetermined formatted message;

decoding the transmitted message; and

receiving the decoded message at a central monitoring station.

58. The method of claim 57, wherein monitoring a condition comprises monitoring for a presence of smoke.

59. The method of claim 58, wherein transmitting the sensed signal comprises:

receiving the sensed signal;

conditioning the sensed signal;

formatting the sensed signal into the message; and

transmitting the message;

60. The method of claim 59, wherein transmitting the sensed signal comprises:

receiving the sensed signal;

conditioning the sensed signal;

formatting the sensed signal into the message; and

transmitting the message;

61. The method of claim 60, wherein receiving the decoded message comprises receiving the decoded message via the Internet.

62. The method of claim 61, wherein formatting the sensed signal comprises:

determining a byte length of the sensed signal;

determining a number of packets needed to send the sensed signal; wherein a packet comprises:

a receiver address;

a sender address;

a command indicator;

the formatted sensed signal;

an error detector;

a packet length indicator;

a current packet indicator; and

a message number; and

composing the message.

63. The method of claim 62, wherein the transmitting the message comprises wirelessly transmitting the message.

64. The method of claim 63, wherein transmitting the message further comprises transmitting the message via RF.

65. The method of claim 63, wherein transmitting the message further comprises transmitting via low-powered RF.